AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (Original) A membrane comprising a support structure coated with crosslinked polyvinylamine, wherein the crosslinking agent is a compound comprising a fluoride.

2. (cancelled).

3. (previously presented) The membrane according to claim 1, wherein the polyvinylamine of the membrane is swelled by water vapour or a water containing diluent.

4. (previously presented) The membrane according to claim 1, wherein the support structure is a flat sheet membrane or a hollow fibre membrane.

5. (Original) The membrane according to claim 1, wherein the support structure is a membrane having a molecular weight cut-off in the range of from about 20,000 to about 40,000.

6. (currently amended) The membrane according to claim 1, wherein the support structure is a membrane having a molecular weight cut-off which is about 10,000~~, such about 15,000, for example about 20,000,~~ less than the molecular weight of the polyvinylamine.

7. (previously presented) The membrane according to claim 1, wherein the support structure is made of polysulfone.

8. (currently amended) The membrane according to claim 1, wherein the molecular weight of said polyvinylamine is above about 30,000~~, such as above about, 50,000, for example above about 70,000 or even above 100,000~~.

9. (Original) The membrane according to claim 8, wherein the molecular weight of said polyvinylamine is below about 150,000.

10. (previously presented) The membrane according to claim 1, wherein the crosslinking agent is selected from the group comprising: ammonium fluoride, ammonium bifluoride, and hydrofluoric acid.

11. (Original) The membrane according to claim 10, wherein the crosslinking agent is ammonium fluoride.

12. (currently amended) A process for producing a membrane according to claim 1, comprising:

- preparing polyvinlyamine;

- coating said polyvinylamine on a support structure to obtain a membrane; and

- crosslinking the polyvinylamine of the membrane with a compound comprising a fluoride.

13. (currently amended) The process according to claim 12, further comprising:

- swelling said polyvinylamine of said membrane by exposing said polyvinylamine ~~for~~ to water vapour or a water containing diluent.

14. (currently amended) The process according to claim 12, wherein the polyvinylamine has a molecular weight above about 30,000~~, such as above about, 50,000, for example above about 70,000~~.

15. (previously presented) The process according to claim 12, wherein the molecular weight of said polyvinylamine is below about 150,000.

16. (currently amended) A method of separating CO_2 from a gaseous mixture comprising the step of:

passing the gaseous mixture over a surface of a membrane, said membrane comprising a support structure with cross-linked polyvinylamine, wherein the crosslinking agent is a compound comprising a fluoride, said membrane being arranged for facilitating transport of CO_2 therethrough.

~~Use of a membrane according to claim 1, for separation of CO2 from gas mixtures.~~

17. (currently amended) The membrane according to claim 4, ~~2,~~ wherein the polyvinylamine of the membrane is swelled by water vapour or a water containing diluent.

18. (currently amended) The process according to claim 13, wherein the polyvinylamine has a molecular weight above about 30,000~~, such as above about, 50,000, for example above about 70,000~~.

19. (new) The membrane according to claim 1, wherein the molecular weight of said polyvinylamine is above 100,000.

20. (new) The process according to claim 12, wherein the polyvinylamine has a molecular weight above about 70,000.